

FIG. 1

PULSE NUMBER	PULSE POSITION
1	0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72,74,76,78
2	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,51,53,55,57,59,61,63,65,67,69,71,73,75,77,79

$$40 \times 40 = 1600$$

FIG.2

PULSE NUMBER	PULSE POSITION
1	0,3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60,63,66,69,72,75,78
2	1,4,7,10,13,16,19,22,25,28,31,34,37,40,43,46,49,52,55,58,61,64,67,70,73,76,79
3	2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56,59,62,65,68,71,74,77

$$27 \times 27 \times 26 = 18954$$

FIG.3

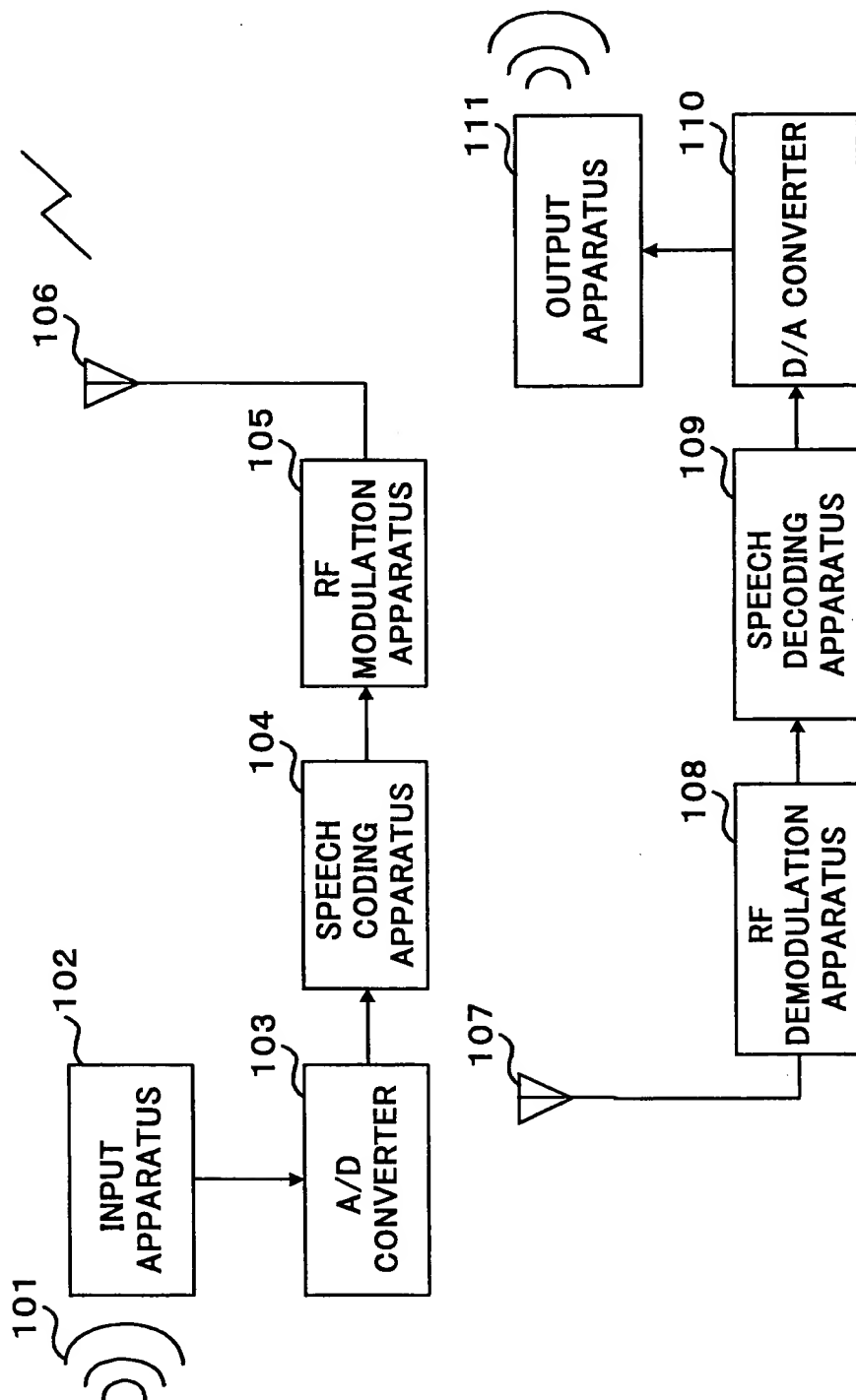


FIG. 4

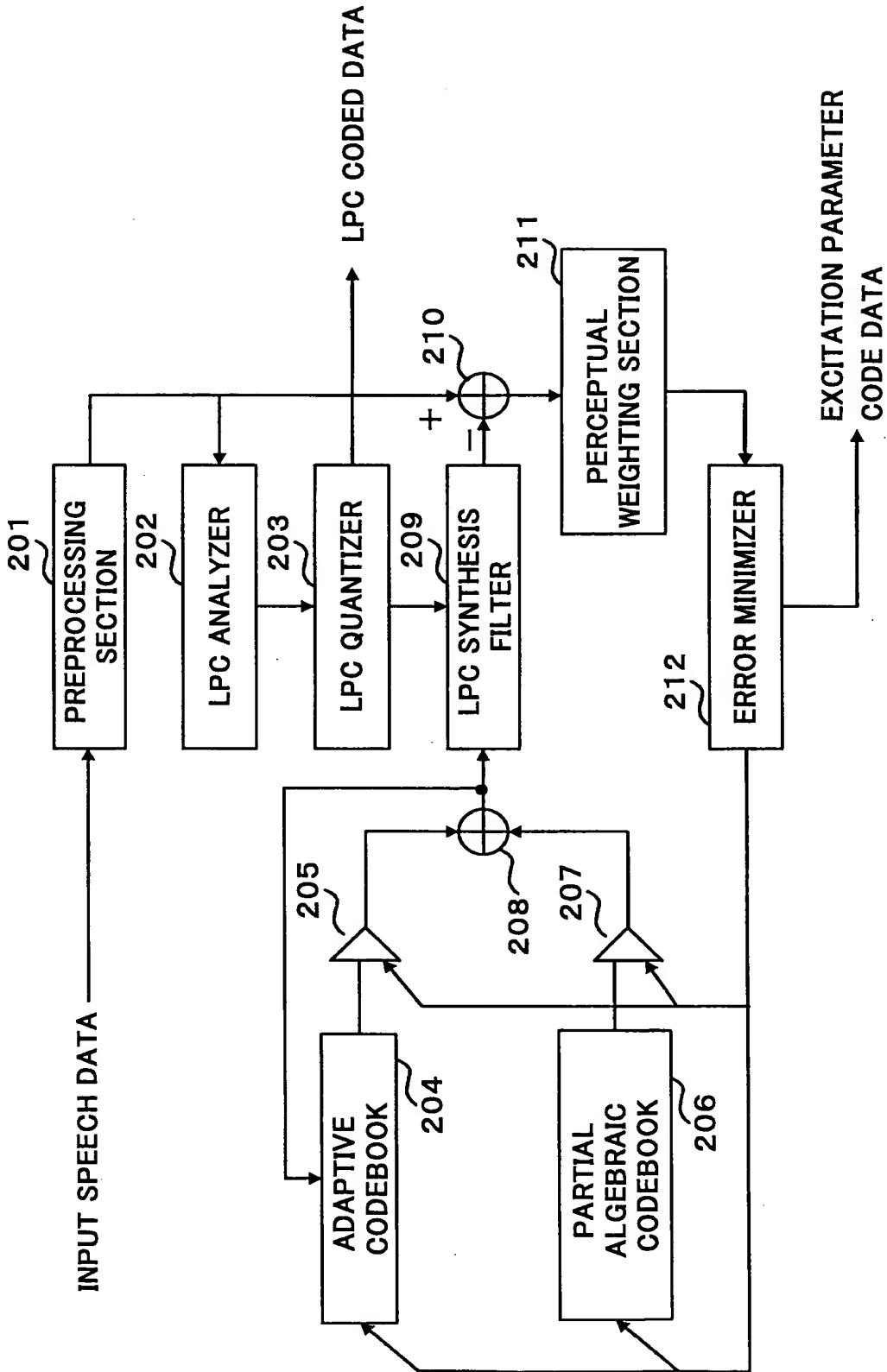


FIG. 5

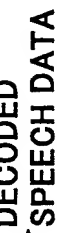


FIG. 6

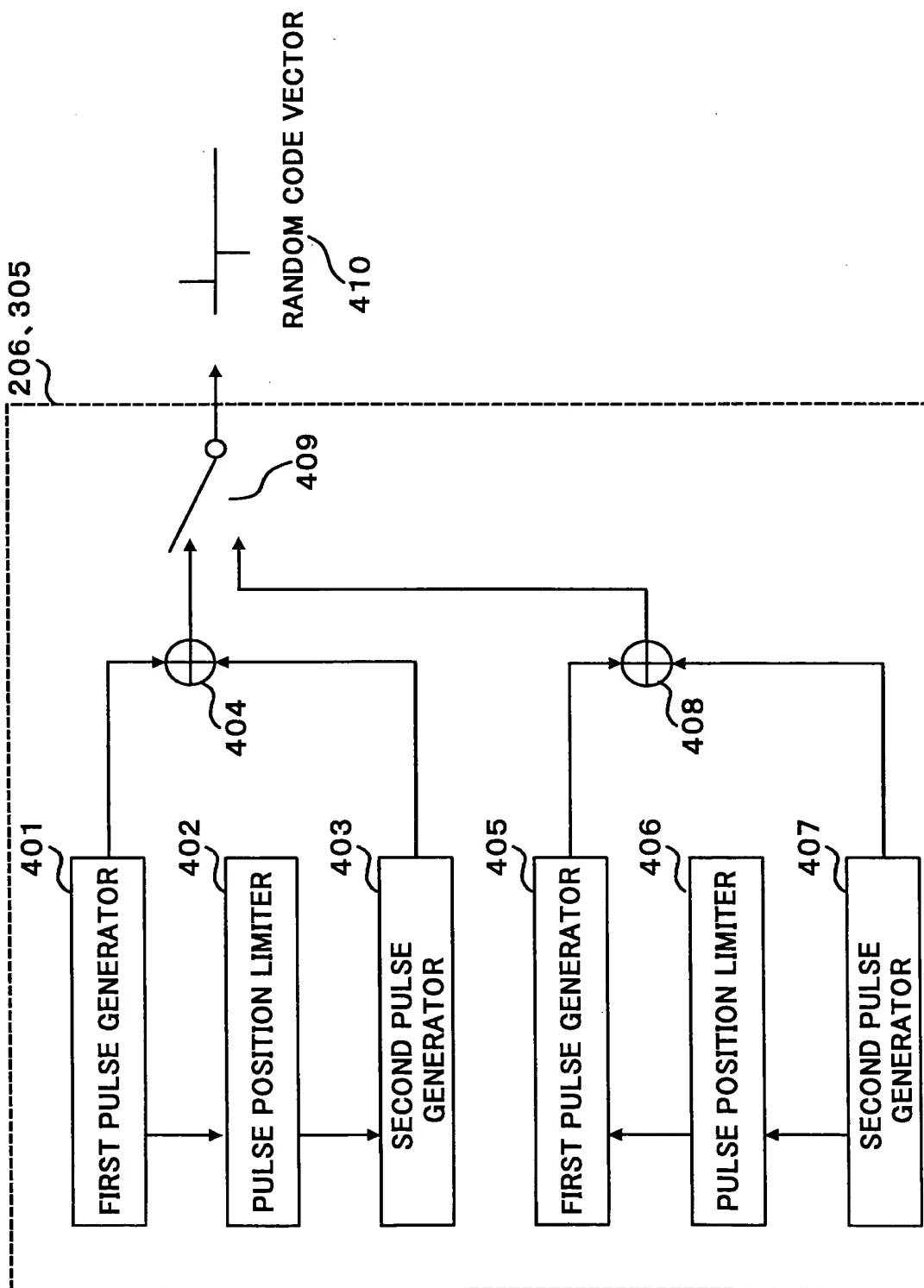


FIG. 7

(a)

PULSE NUMBER	PULSE POSITION
1	0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56, 58,60,62,64,66,68,70,72
2	P1+1,P1+3,P1+5,P1+7

(b)

PULSE NUMBER	PULSE POSITION
1	P2+1,P2+3,P2+5,P2+7,
2	1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,51,53,55,57, 59,61,63,65,67,69,71

(c)

PULSE NUMBER	PULSE POSITION
1	74,76,78
2	73,75,77,79

$$37 \times 4 + 36 \times 4 + 3 \times 4 = 304$$

FIG.8

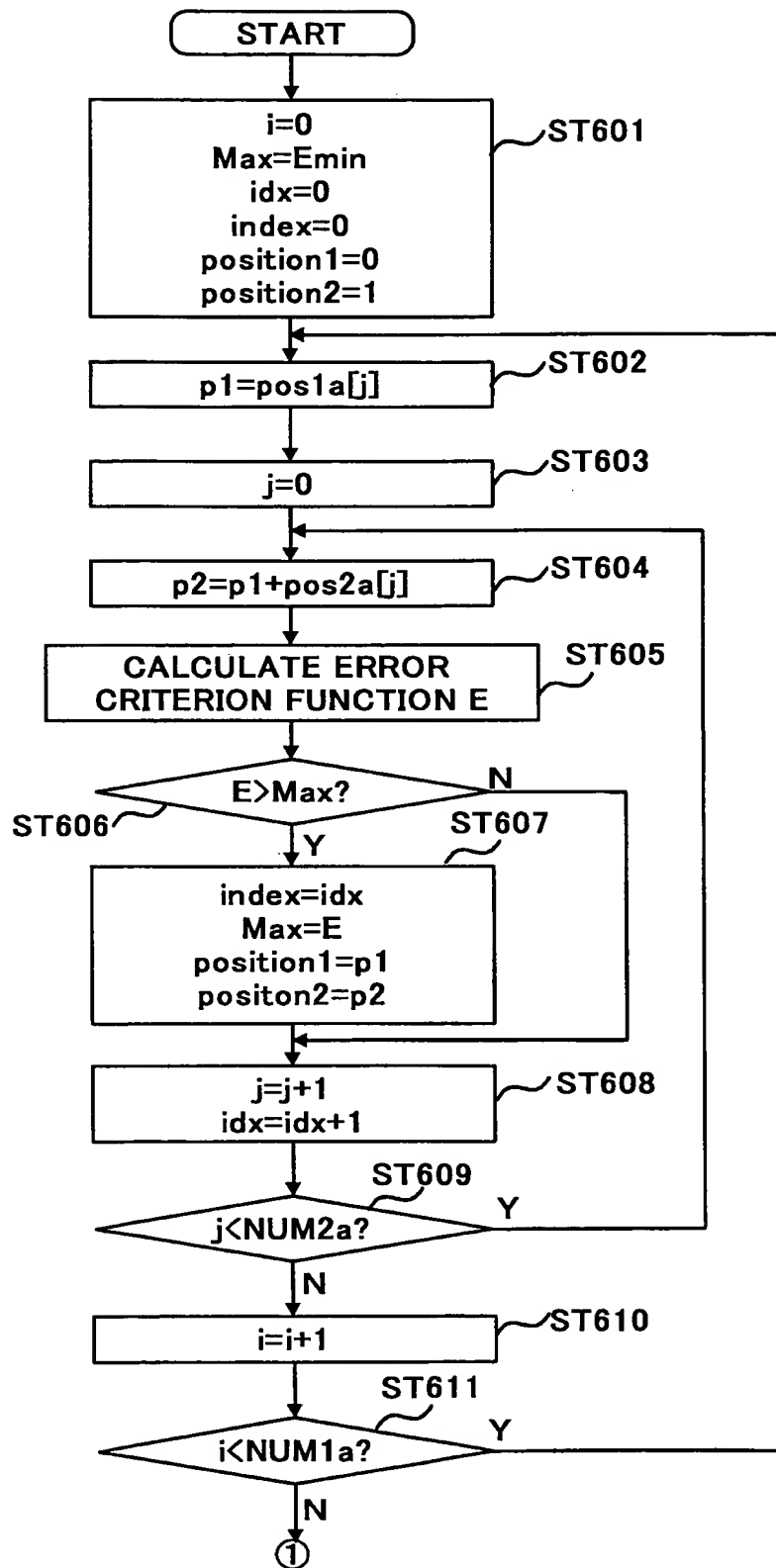


FIG.9

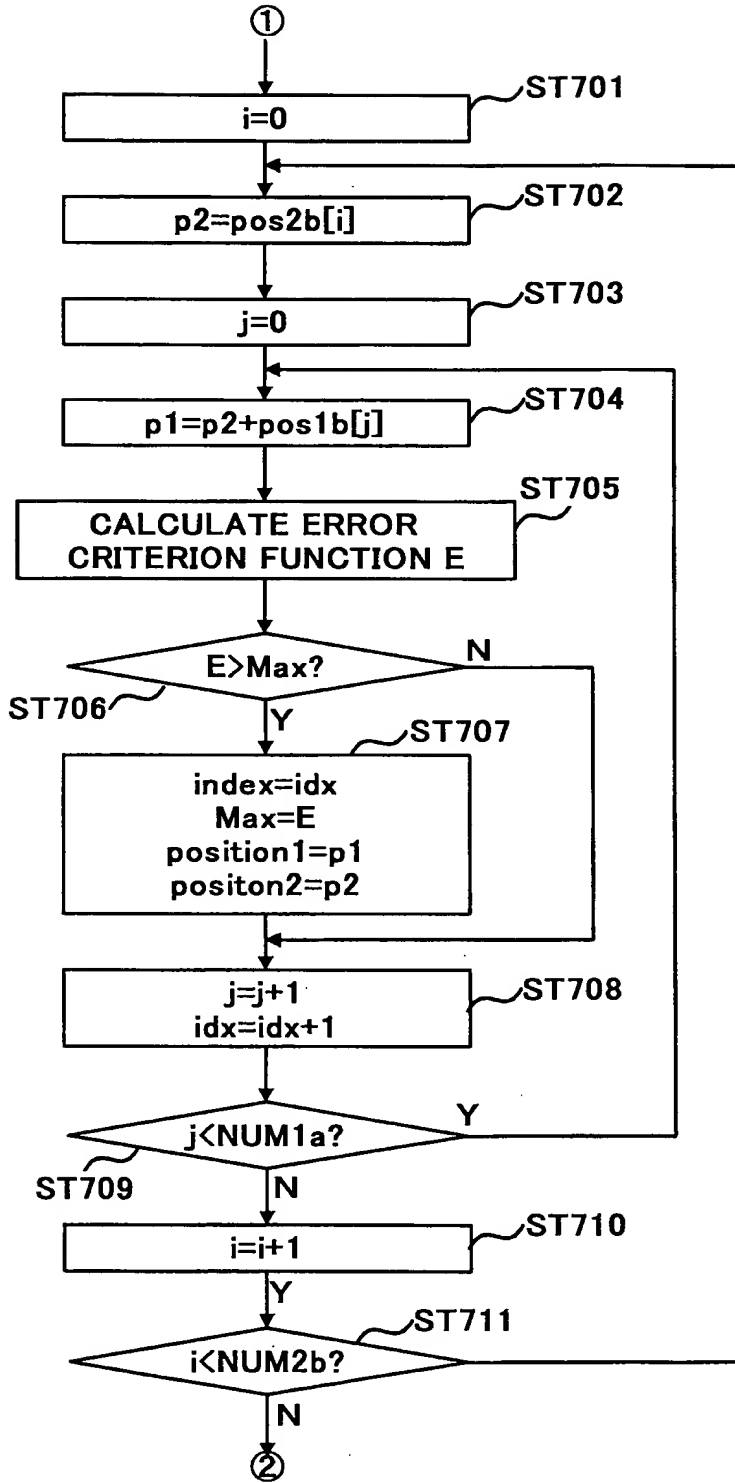


FIG. 10

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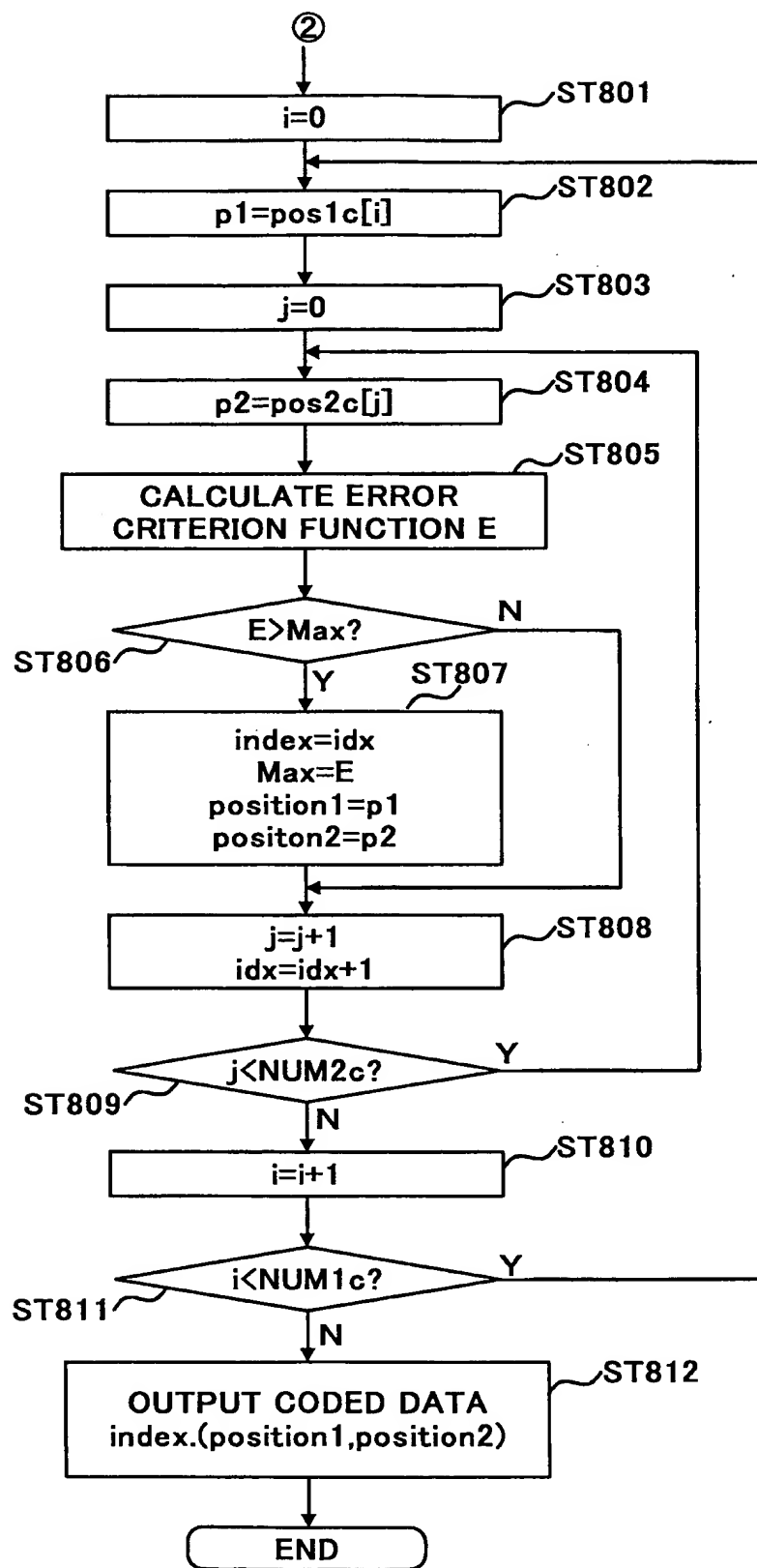


FIG.11

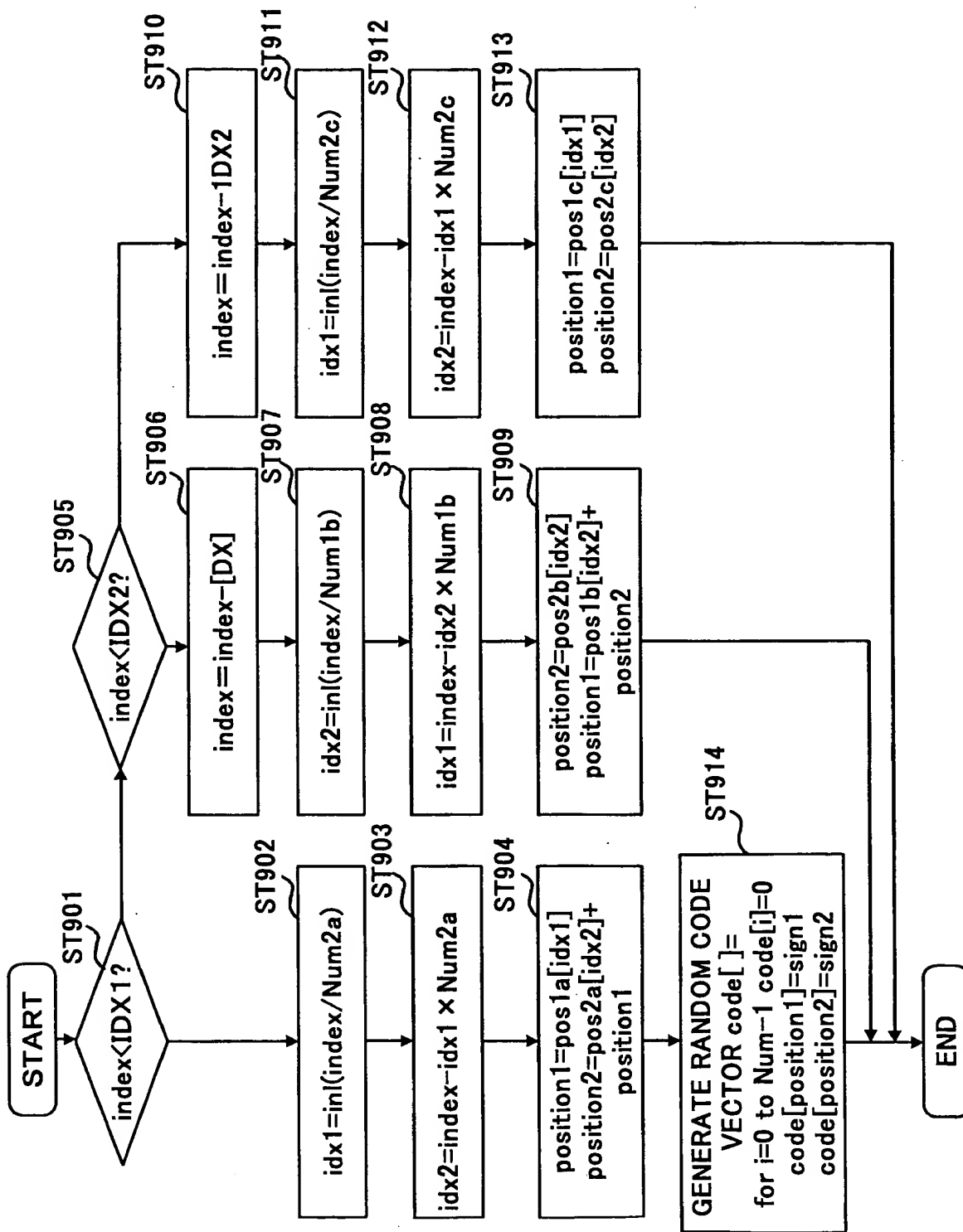


FIG. 12

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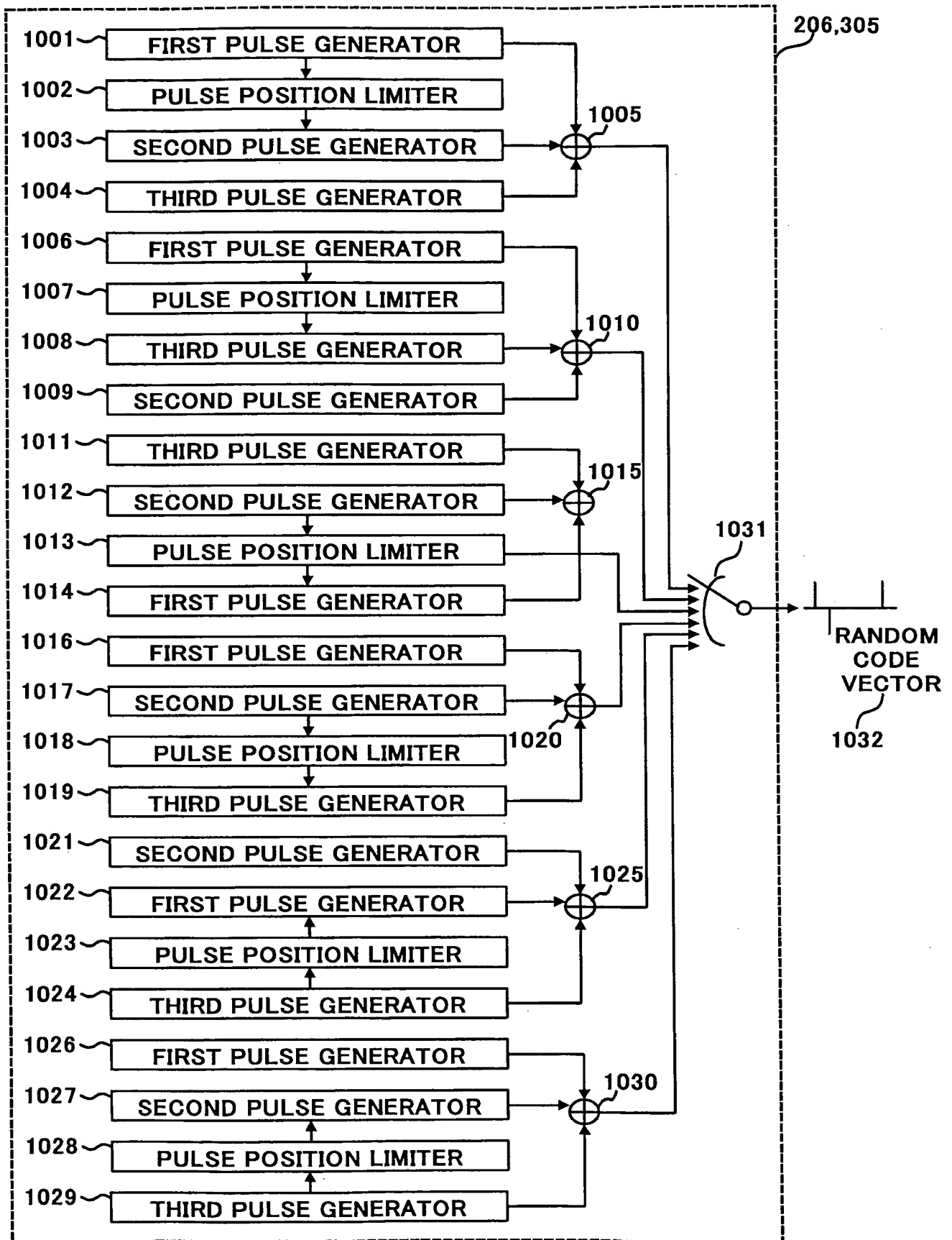


FIG. 13

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PULSE NUMBER	PULSE POSITION (a)
1	0,3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60,63,66,69,72
2	P1+1,P1+4,P1+7
3	2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56,59,62,65,68,71,74,77

PULSE NUMBER	PULSE POSITION (b)
1	P2+2,P2+5,P2+8
2	1,4,7,10,13,16,19,22,25,28,31,34,37,40,43,46,49,52,55,58,61,64,67,70
3	2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56,59,62,65,68,71,74,77

	PULSE NUMBER	PULSE POSITION (c)
(c)	1	75,78
	2	73,76,79
	3	2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56,59,62,65,68,71,74,77

(d)	PULSE NUMBER	PULSE POSITION (d)
	1	0,3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60,63,66,69
	2	1,4,7,10,13,16,19,22,25,28,31,34,37,40,43,46,49,52,55,58,61,64,67,70,73,76,79
	3	P1+2,P1+5,P1+8

	PULSE NUMBER	PULSE POSITION (e)
(e)	1	P3+1,P3+4,P3+7
	2	1,4,7,10,13,16,19,22,25,28,31,34,37,40,43,46,49,52,55,58,61,64,67,70,73,76,79
	3	2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56,59,62,65,68,71

	PULSE NUMBER	PULSE POSITION (f)
(f)	1	72,75,78
	2	1,4,7,10,13,16,19,22,25,28,31,34,37,40,43,46,49,52,55,58,61,64,67,70,73,76,79
	3	74,77

	PULSE NUMBER	PULSE POSITION (g)
(g)	1	0,3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60,63,66,69,72,75,78
	2	1,4,7,10,13,16,19,22,25,28,31,34,37,40,43,46,49,52,55,58,61,64,67,70
	3	P2+1,P2+4,P2+7

	PULSE NUMBER	PULSE POSITION (h)
(h)	1	0,3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60,63,66,69,72,75,78
	2	P3+2,P3+5,P3+8
	3	2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56,59,62,65,68,71

	PULSE NUMBER	PULSE POSITION (i)
(i)	1	0,3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60,63,66,69,72,75,78
	2	73,76,79
	3	74,77

$$(25 \times 3 + 3 \times 24 + 2 \times 3) \times 26 + (24 \times 3 + 3 \times 24 + 3 \times 2) \times 27 + (24 \times 3 + 3 \times 24 + 3 \times 2) \times 27 = 12078$$

FIG. 14

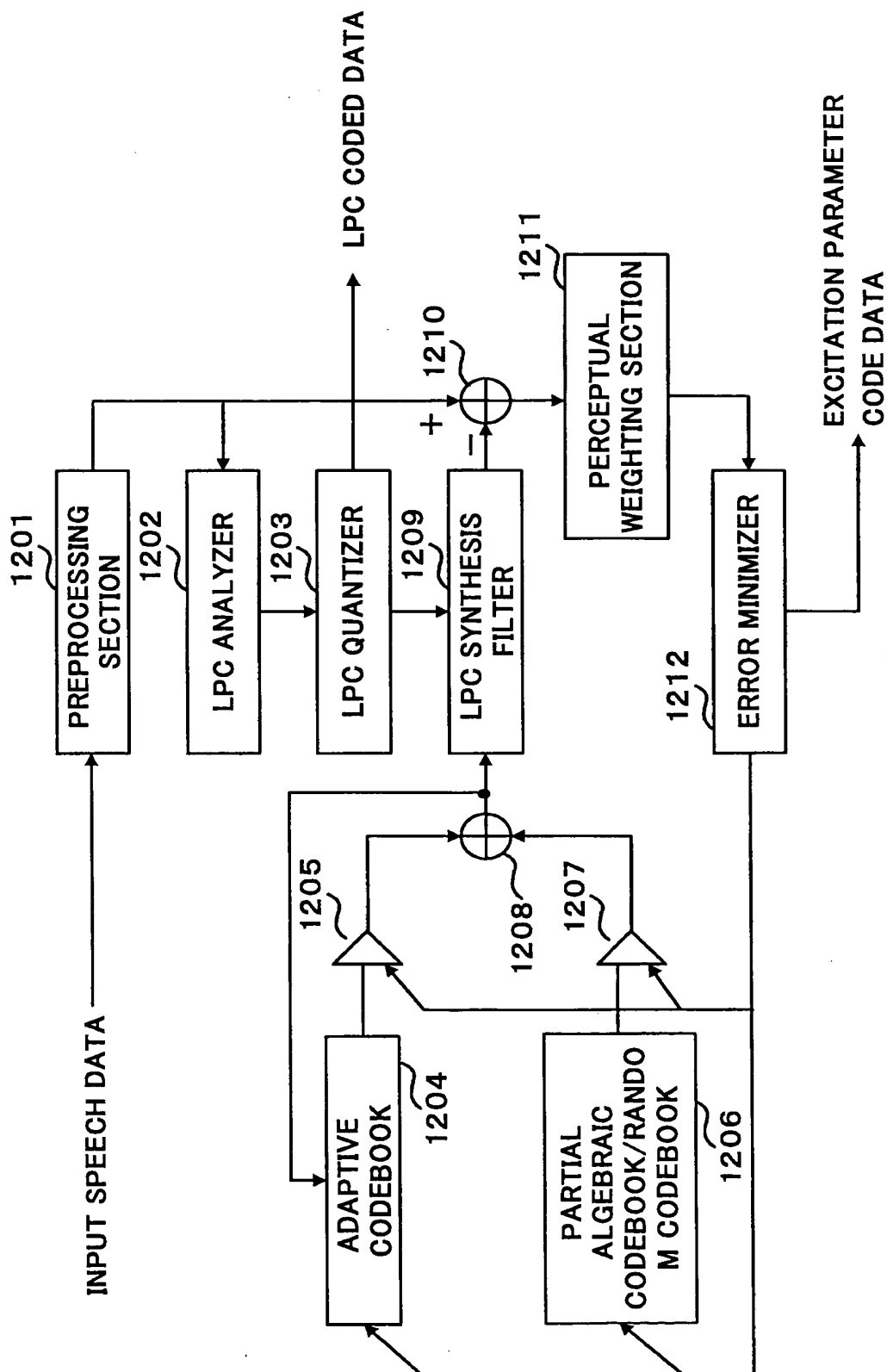


FIG. 15

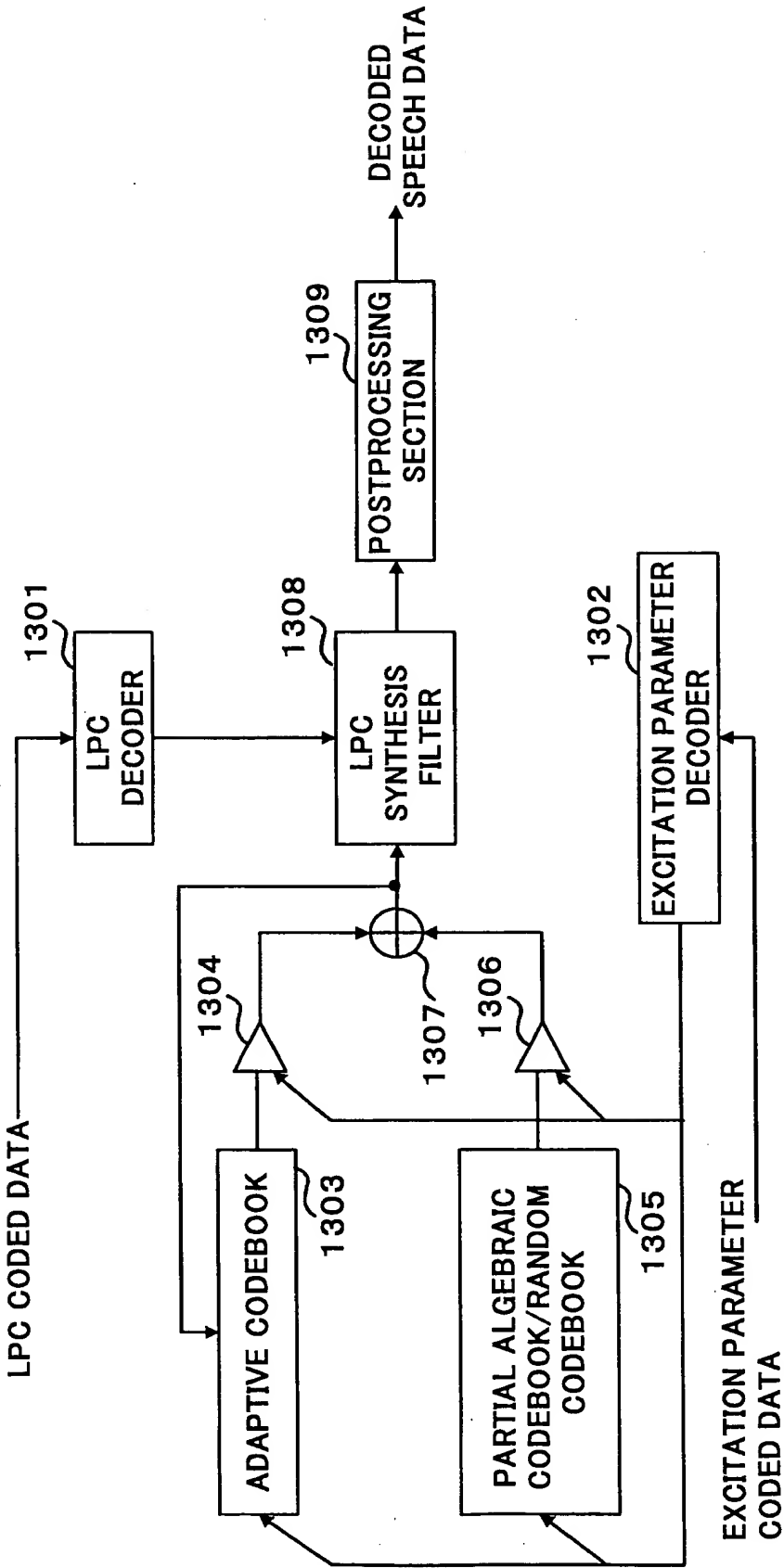


FIG. 16

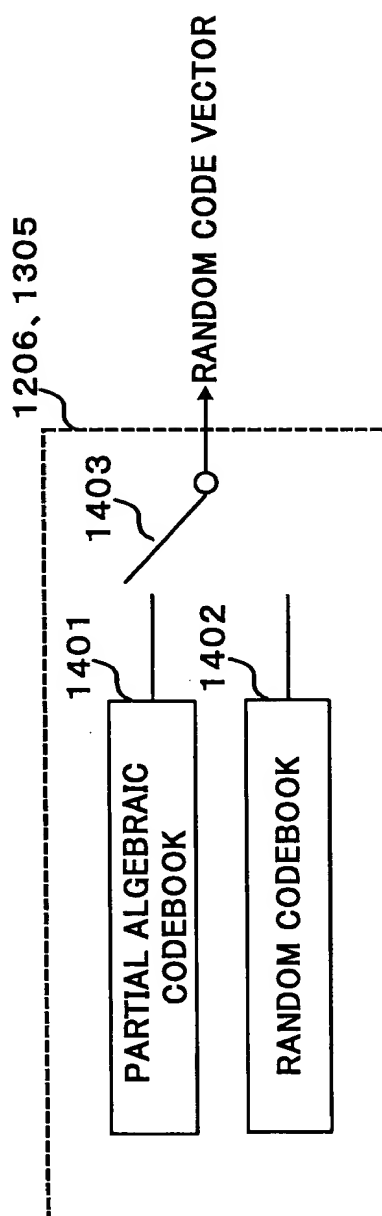


FIG. 17

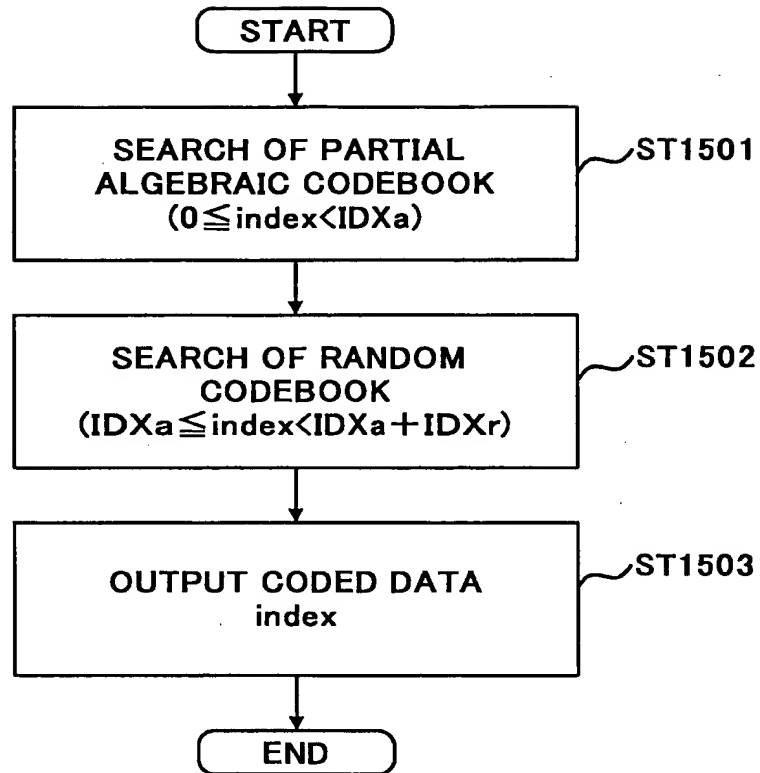


FIG. 18

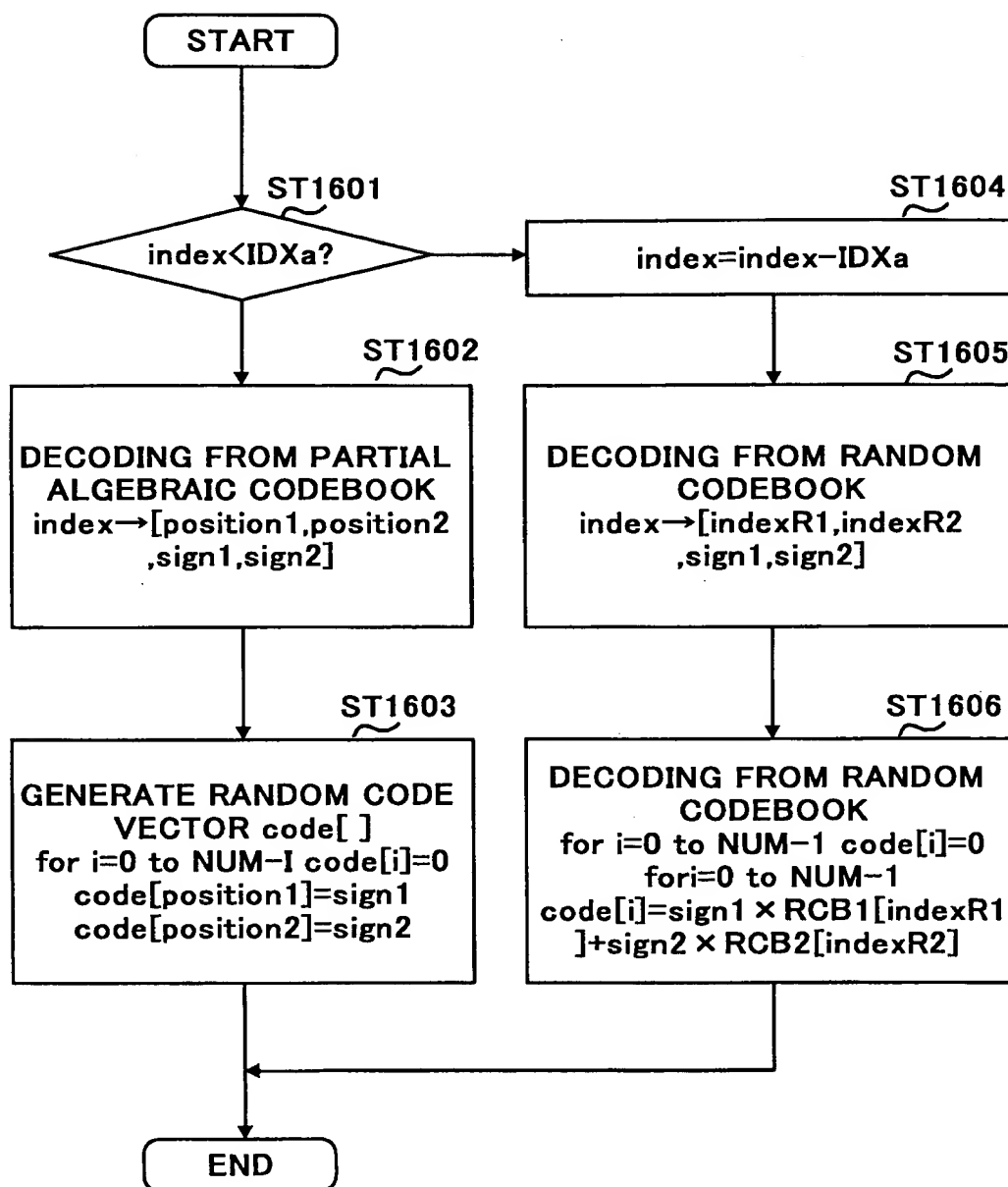
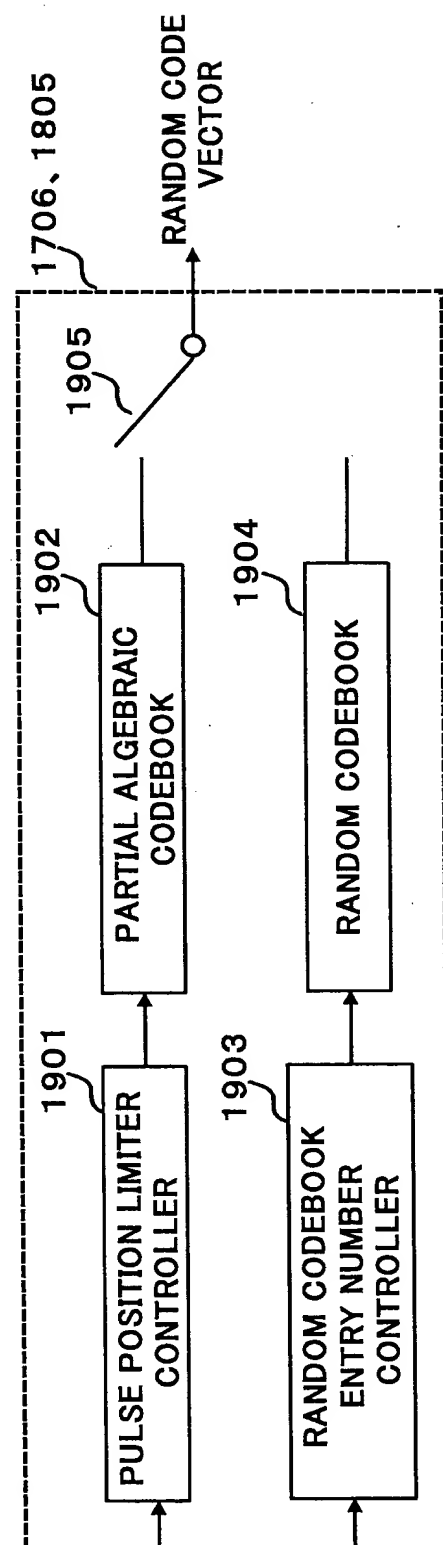


FIG. 19



FIG. 20





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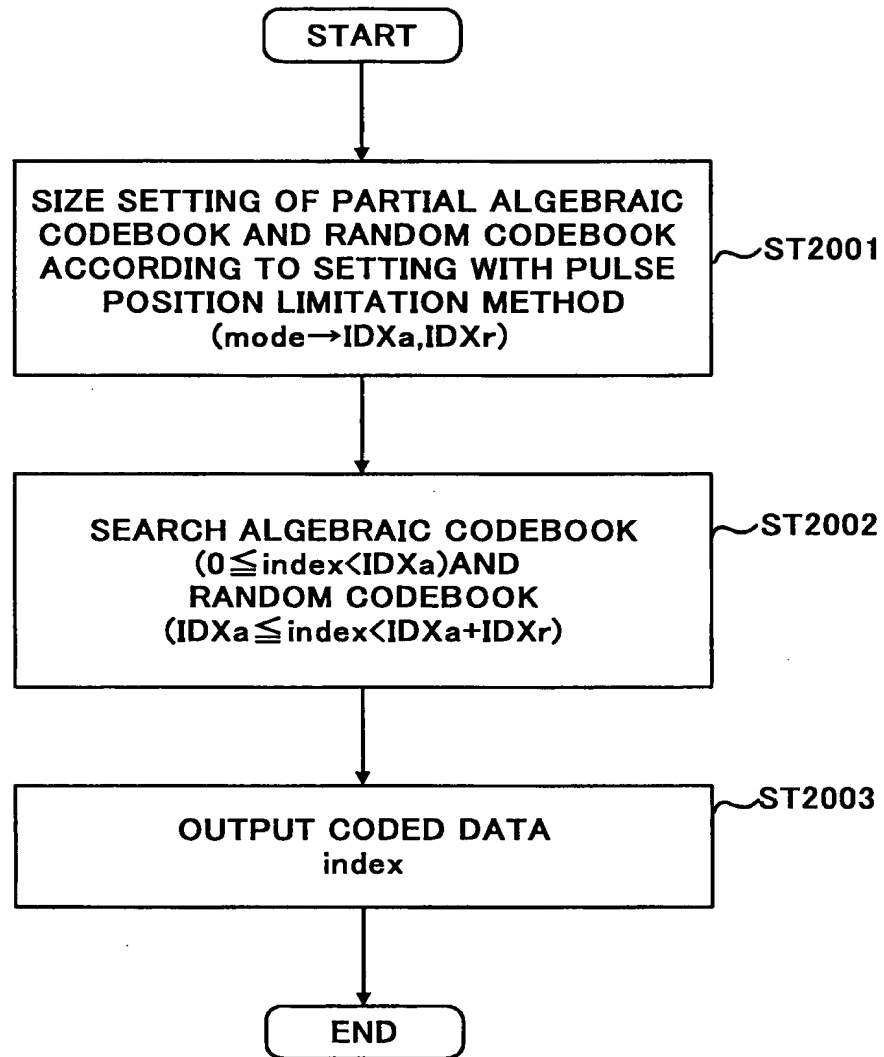


FIG.23

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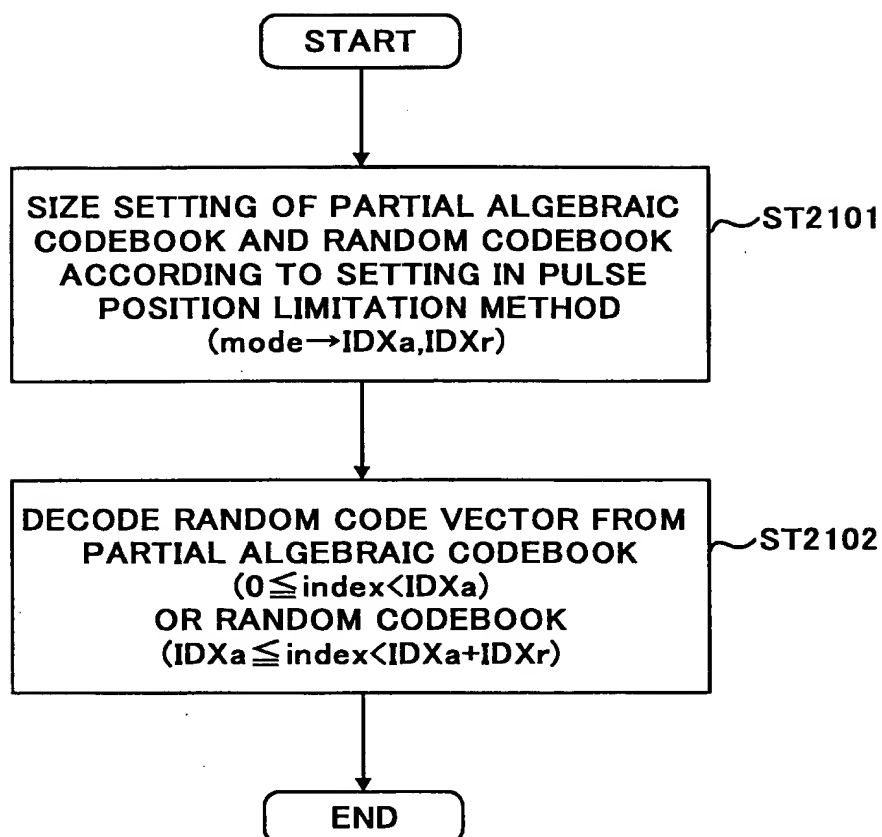


FIG.24

pulse1(=P1)/CH1	pulse2(=P2)/CH2	INDEX
0	P1+1	0
Ra4	Rb0	1
2	P1+1	2
Ra4	Rb1	3
4	P1+1	4
Ra4	Rb2	5
6	P1+1	6
Ra4	Rb3	7
P2+1	1	8
Ra5	Rb0	9
P2+1	3	10
Ra5	Rb1	11
P2+1	5	12
Ra5	Rb2	13
P2+1	7	14
Ra5	Rb3	15
Ra0	Rb0	16
Ra0	Rb1	17
Ra0	Rb2	18
Ra0	Rb3	19
Ra1	Rb0	20
Ra1	Rb1	21
Ra1	Rb2	22
Ra1	Rb3	23
Ra2	Rb0	24
Ra2	Rb1	25
Ra2	Rb2	26
Ra2	Rb3	27
Ra3	Rb0	28
Ra3	Rb1	29
Ra3	Rb2	30
Ra3	Rb3	31

FIG.25B

pulse1(=P1)/CH1	pulse2(=P2)/CH2	INDEX
0	P1+1	0
0	P1+3	1
2	P1+1	2
2	P1+3	3
4	P1+1	4
4	P1+3	5
6	P1+1	6
6	P1+3	7
P2+1	1	8
P2+3	1	9
P2+1	3	10
P2+3	3	11
P2+1	5	12
P2+3	5	13
P2+1	7	14
P2+3	7	15
Ra0	Rb0	16
Ra0	Rb1	17
Ra0	Rb2	18
Ra0	Rb3	19
Ra1	Rb0	20
Ra1	Rb1	21
Ra1	Rb2	22
Ra1	Rb3	23
Ra2	Rb0	24
Ra2	Rb1	25
Ra2	Rb2	26
Ra2	Rb3	27
Ra3	Rb0	28
Ra3	Rb1	29
Ra3	Rb2	30
Ra3	Rb3	31

FIG.25A

PARTIAL ALGEBRAIC CODEBOOK SIZE= $4 \times 2 + 4 \times 2 = 16$ PARTIAL ALGEBRAIC CODEBOOK SIZE= $4 \times 1 + 4 \times 1 = 8$
RANDOM CODEBOOK SIZE= $4 \times 4 = 16$ RANDOM CODEBOOK SIZE= $6 \times 4 = 24$

pulse1(=P1)/CH1	pulse2(=P2)/CH2	INDEX
0	P1+1	0
0	P1+3	1
2	P1+1	2
2	P1+3	3
4	P1+1	4
4	P1+3	5
P2+1	1	6
P2+3	1	7
P2+1	3	8
P2+3	3	9
6	5	10
6	7	11
Ra0	Rb0	12
Ra0	Rb1	13
Ra1	Rb0	14
Ra1	Rb1	15

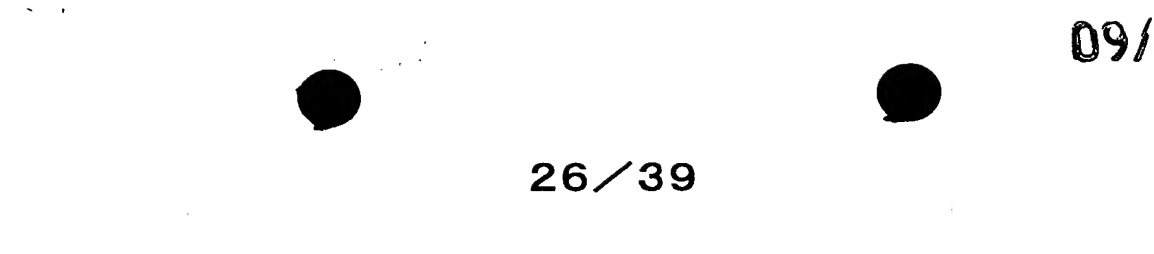
PARTIAL ALGEBRAIC CODEBOOK SIZE=
 $3 \times 2 + 2 \times 2 + 1 \times 2 = 12$
RANDOM CODEBOOK SIZE= $2 \times 2 = 4$

pulse1(=P1)/CH1	pulse2(=P2)/CH2	INDEX
0	P1+1	0
Ra2	Rb0	1
2	P1+1	2
Ra2	Rb1	3
4	P1+1	4
Ra2	Rb2	5
P2+1	1	6
Ra0	Rb2	7
P2+1	3	8
Ra1	Rb2	9
6	5	10
6	7	11
Ra0	Rb0	12
Ra0	Rb1	13
Ra1	Rb0	14
Ra1	Rb1	15

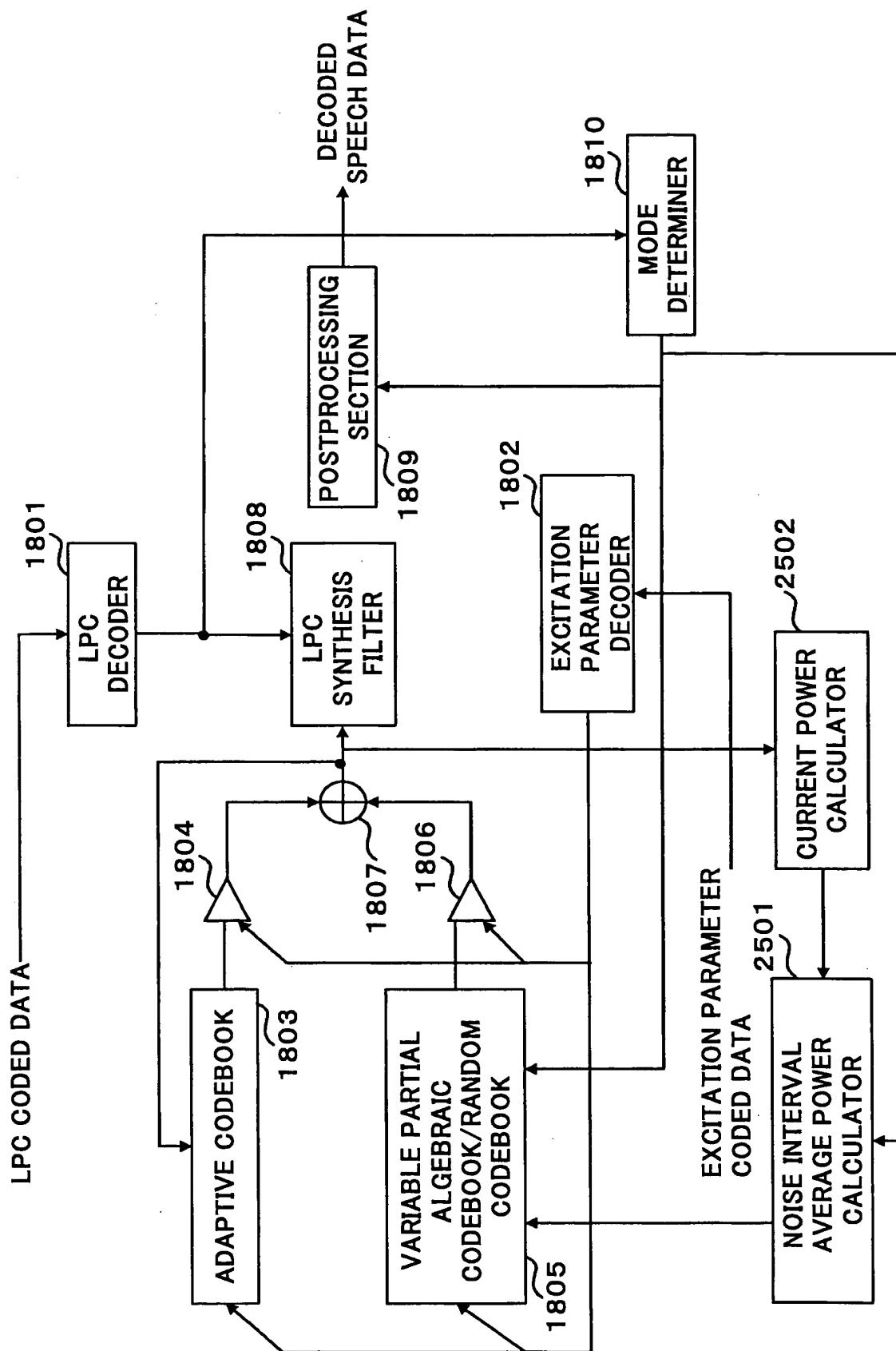
PARTIAL ALGEBRAIC CODEBOOK SIZE=
 $3 \times 1 + 2 \times 1 + 1 \times 2 = 7$
RANDOM CODEBOOK SIZE= $6 \times 4 = 24$

FIG. 26A

FIG. 26B



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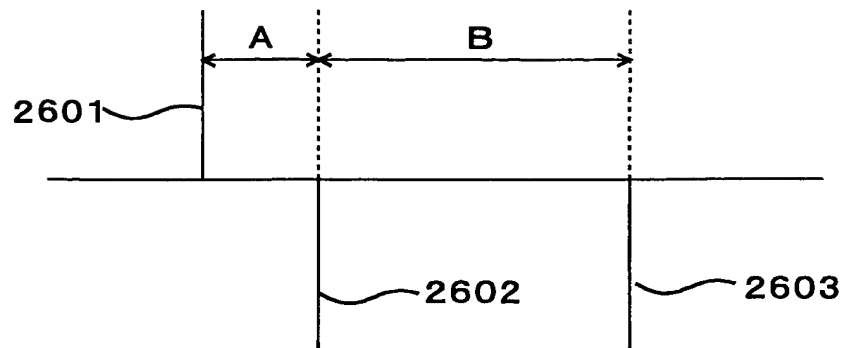


FIG. 29

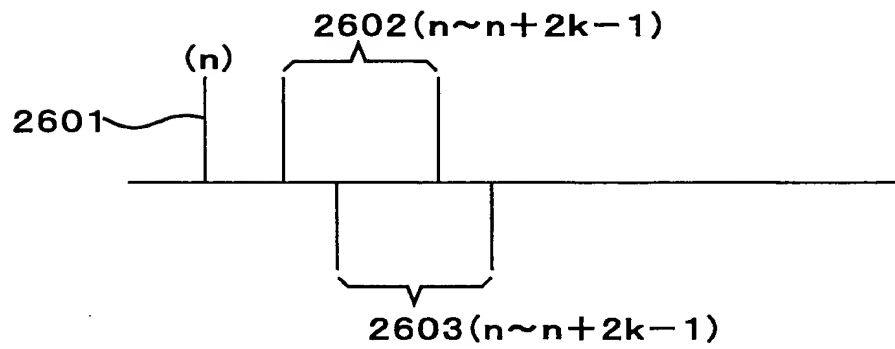


FIG. 30A

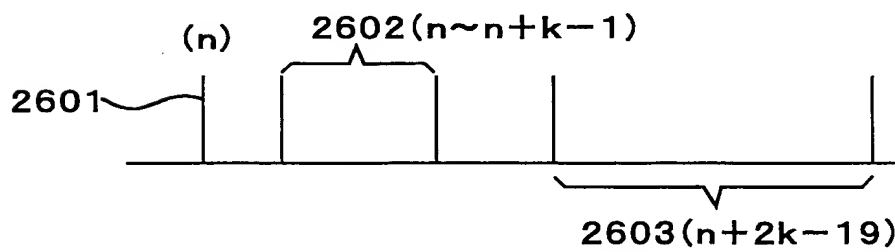


FIG. 30B

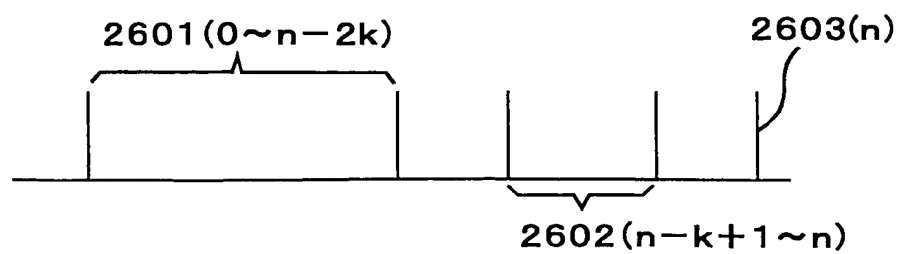


FIG. 30C

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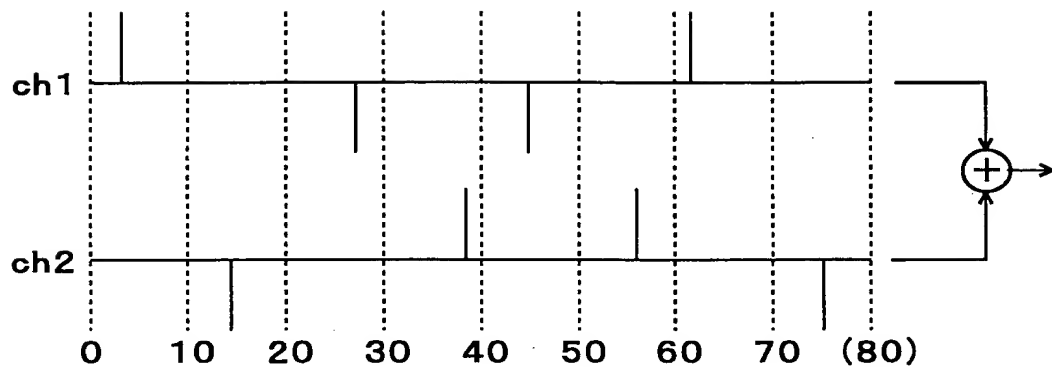


FIG.31

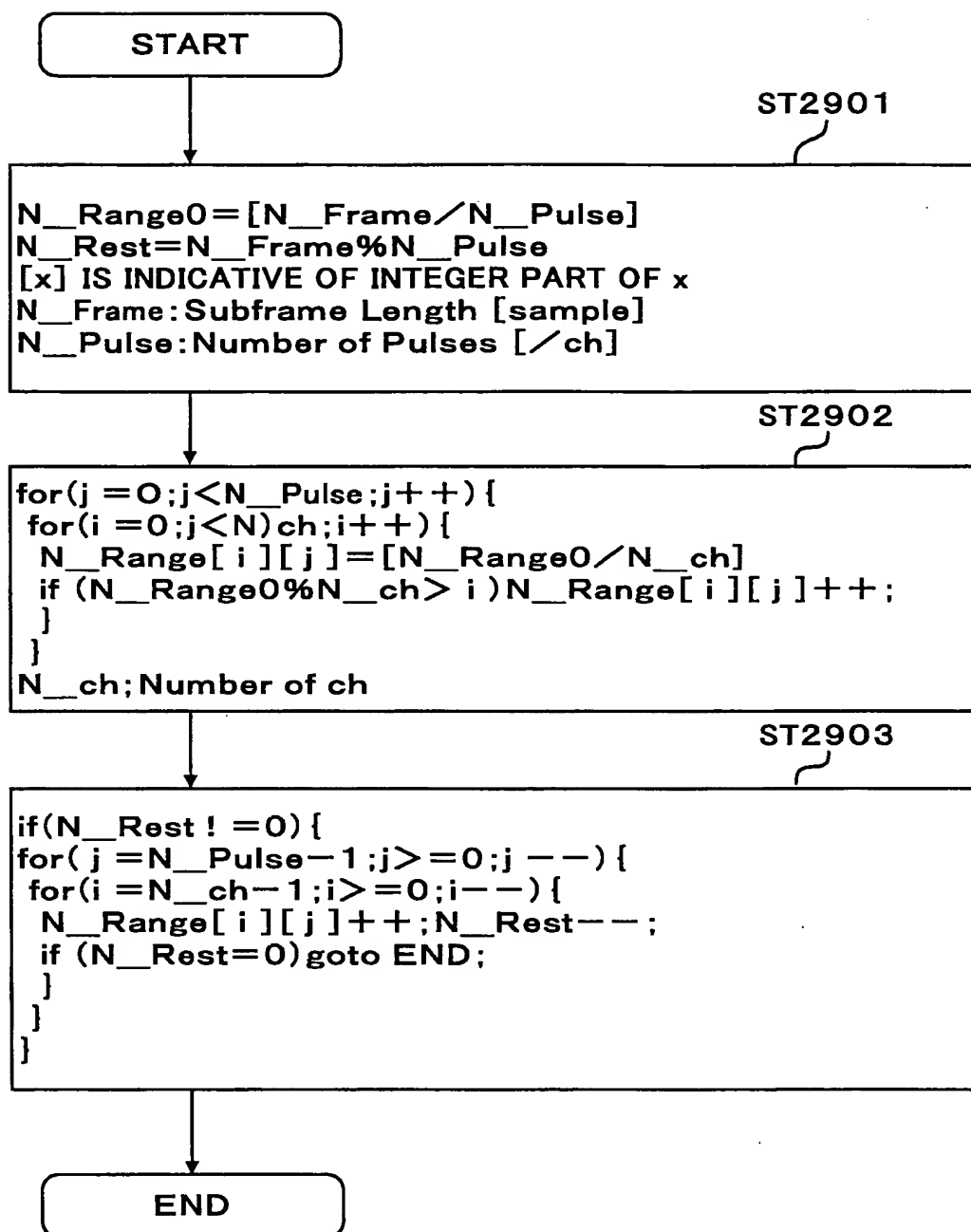


FIG.32

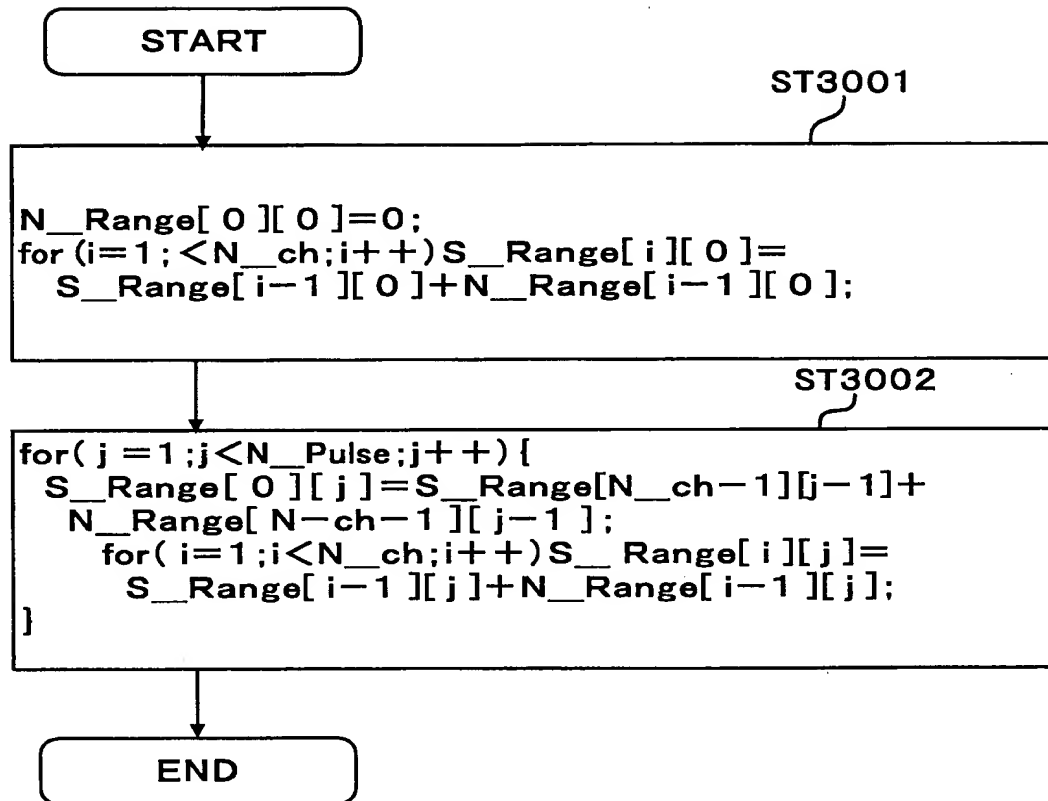


FIG.33

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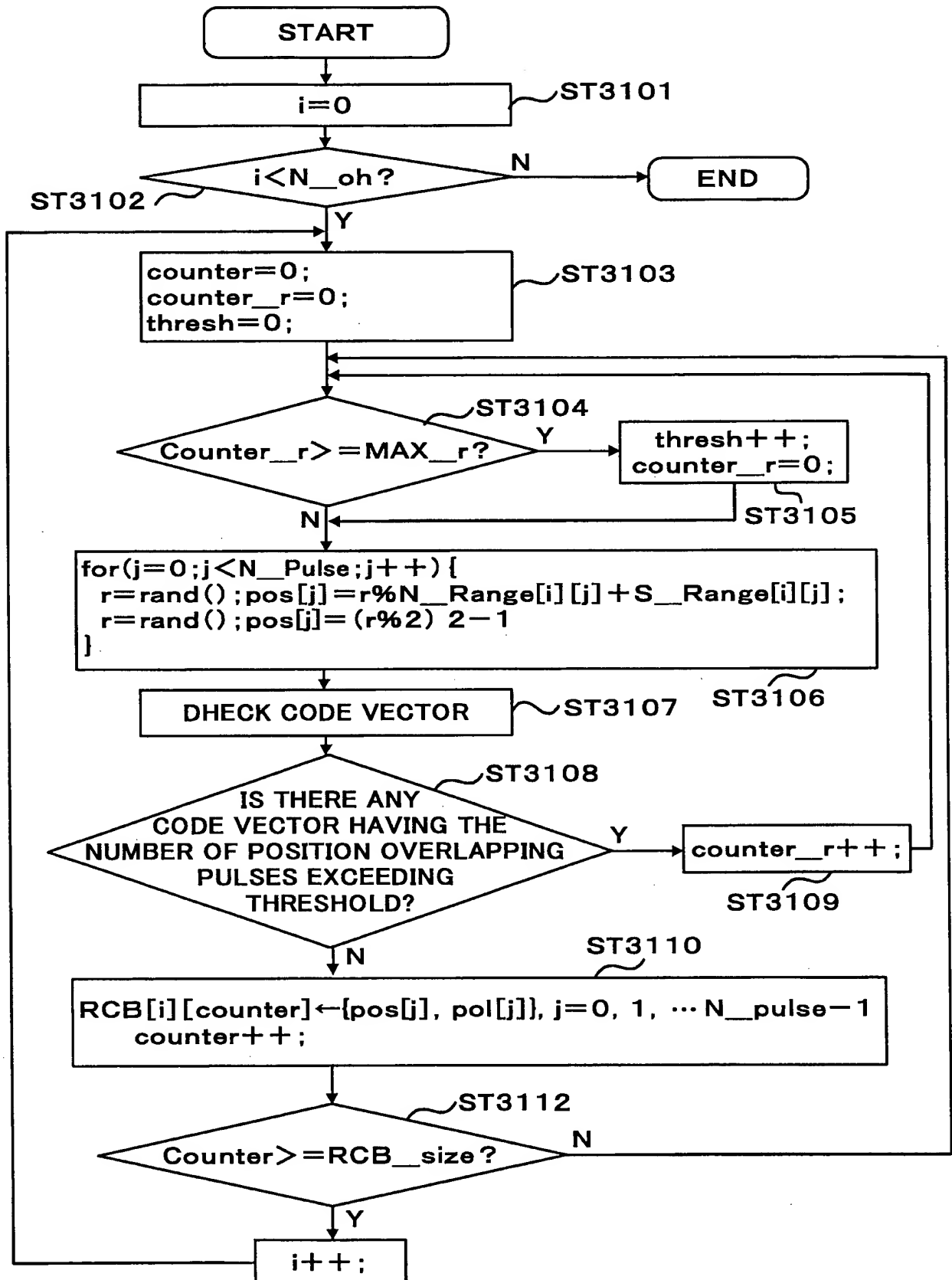


FIG.34

THE NUMBER OF PULSES 4

PULSE NUMBER	ARRANGEMENT RANGE OF EACH PULSE		STARTING POSITION OF EACH RANGE	
j	ch1 (N_Range [0][j])	ch2 (N_Range [1][j])	ch1 (S_Range [0][j])	ch2 (S_Range [1][j])
0	10	10	0	10
1	10	10	20	30
2	10	10	40	50
3	10	10	60	70

FIG. 35A

**THE NUMBER
OF PULSES 6**

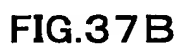
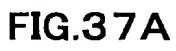
PULSE NUMBER	ARRANGEMENT RANGE OF EACH PULSE		STARTING POSITION OF EACH RANGE	
j	ch1 (N_Range [0][j])	ch2 (N_Range [1][j])	ch1 (S_Range [0][j])	ch2 (S_Range [1][j])
0	7	6	0	7
1	7	6	13	20
2	7	6	26	33
3	7	6	39	46
4	7	6	52	59
5	8	7	65	73

FIG. 35B

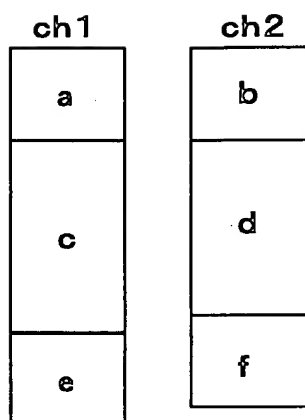
(a)			(b)			(c)			INDEX NUMBER		
X	0	PARTIAL ALGEBRAIC CODEBOOK (THREE PULSES ARE ADJACENT)	X	0	PARTIAL ALGEBRAIC CODEBOOK (THREE PULSES ARE ADJACENT)	X	0	PARTIAL ALGEBRAIC CODEBOOK (THREE PULSES ARE ADJACENT)	0		
	A-1	PARTIAL ALGEBRAIC CODEBOOK (FIRST TWO PULSES ARE ADJACENT)		A-1	PARTIAL ALGEBRAIC CODEBOOK (FIRST TWO PULSES ARE ADJACENT)		A-1	RANDOM CODEBOOK ($e \times [b+d]$)	A-1		
	A	(PULSE 1 IS FIRST PULSE)		A	(PULSE 1 IS FIRST PULSE)		A	RANDOM CODEBOOK ($e \times [b+d]$)	A		
	?	(LATTER TWO PULSES ARE ADJACENT)		?	(LATTER TWO PULSES ARE ADJACENT)		?	RANDOM CODEBOOK ($[a+c+e] \times f$)	?		
Y	B-1	PARTIAL ALGEBRAIC CODEBOOK (PULSE 1 IS FIRST PULSE)	Y	B-1	PARTIAL ALGEBRAIC CODEBOOK (PULSE 1 IS FIRST PULSE)		B-1	RANDOM CODEBOOK ($c \times b$)	B-1		
	B	(LATTER TWO PULSES ARE ADJACENT)		B	(LATTER TWO PULSES ARE ADJACENT)		B	RANDOM CODEBOOK ($c \times b$)	B		
	?	(PULSE 1 IS FIRST PULSE)		?	(PULSE 1 IS FIRST PULSE)		?	RANDOM CODEBOOK ($c \times b$)	?		
	C-1	PARTIAL ALGEBRAIC CODEBOOK (PULSE 1 IS FIRST PULSE)		C-1	PARTIAL ALGEBRAIC CODEBOOK (PULSE 1 IS FIRST PULSE)		C-1	RANDOM CODEBOOK ($c \times b$)	C-1		
Z	C	PARTIAL ALGEBRAIC CODEBOOK (FIRST TWO PULSES ARE ADJACENT)	Z	C	PARTIAL ALGEBRAIC CODEBOOK (FIRST TWO PULSES ARE ADJACENT)		C	RANDOM CODEBOOK ($c \times b$)	C		
	?	(PULSE 2 IS FIRST PULSE)		?	(PULSE 2 IS FIRST PULSE)		?	RANDOM CODEBOOK ($[a+c] \times d$)	?		
	D-1	PARTIAL ALGEBRAIC CODEBOOK (PULSE 2 IS FIRST PULSE)		D-1	PARTIAL ALGEBRAIC CODEBOOK (PULSE 2 IS FIRST PULSE)		D-1	RANDOM CODEBOOK ($[a+c] \times d$)	D-1		
	D	(LATTER TWO PULSES ARE ADJACENT)		D	(LATTER TWO PULSES ARE ADJACENT)		D	RANDOM CODEBOOK ($[a+c] \times d$)	D		
	E-1	PARTIAL ALGEBRAIC CODEBOOK (PULSE 3 IS FIRST PULSE)		E-1	PARTIAL ALGEBRAIC CODEBOOK (PULSE 3 IS FIRST PULSE)		E-1	RANDOM CODEBOOK ($[a+c] \times d$)	E-1		
	E	(FIRST TWO PULSES ARE ADJACENT)		E	(FIRST TWO PULSES ARE ADJACENT)		E	RANDOM CODEBOOK ($[a+c] \times d$)	E		
	?	(PULSE 3 IS FIRST PULSE)		?	(PULSE 3 IS FIRST PULSE)		?	RANDOM CODEBOOK ($[a+c] \times d$)	?		
	F-1	PARTIAL ALGEBRAIC CODEBOOK (PULSE 3 IS FIRST PULSE)		F-1	PARTIAL ALGEBRAIC CODEBOOK (PULSE 3 IS FIRST PULSE)		F-1	RANDOM CODEBOOK ($[a+c] \times d$)	F-1		
	F	PARTIAL ALGEBRAIC CODEBOOK (LATTER TWO PULSES ARE ADJACENT)		F	PARTIAL ALGEBRAIC CODEBOOK (LATTER TWO PULSES ARE ADJACENT)		F	RANDOM CODEBOOK ($[a+c] \times d$)	F		
	?	(PULSE 3 IS FIRST PULSE)		?	(PULSE 3 IS FIRST PULSE)		?	RANDOM CODEBOOK ($[a+c] \times d$)	?		
	G-1	PARTIAL ALGEBRAIC CODEBOOK (PULSE 3 IS FIRST PULSE)		G-1	PARTIAL ALGEBRAIC CODEBOOK (PULSE 3 IS FIRST PULSE)		G-1	RANDOM CODEBOOK ($[a+c] \times d$)	G-1		
	G	(LATTER TWO PULSES ARE ADJACENT)		G	(LATTER TWO PULSES ARE ADJACENT)		G	RANDOM CODEBOOK ($[a+c] \times d$)	G		
	H-1	PARTIAL ALGEBRAIC CODEBOOK (PULSE 3 IS FIRST PULSE)		H-1	PARTIAL ALGEBRAIC CODEBOOK (PULSE 3 IS FIRST PULSE)		H-1	RANDOM CODEBOOK ($[a+c] \times d$)	H-1		
	H	(LATTER TWO PULSES ARE ADJACENT)		H	(LATTER TWO PULSES ARE ADJACENT)		H	RANDOM CODEBOOK ($[a+c] \times d$)	H		
	?	(PULSE 3 IS FIRST PULSE)		?	(PULSE 3 IS FIRST PULSE)		?	RANDOM CODEBOOK ($[a+c] \times d$)	?		

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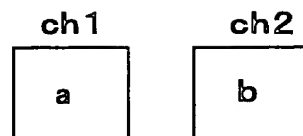
FIG.36



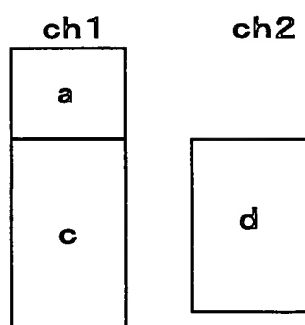
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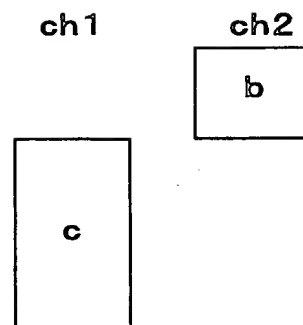
(a)



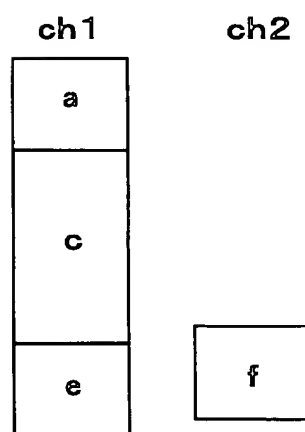
(b)



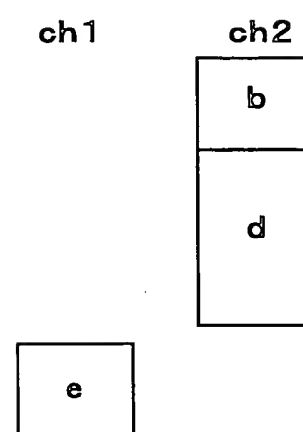
(c)



(d)



(e)



(f)

FIG.38

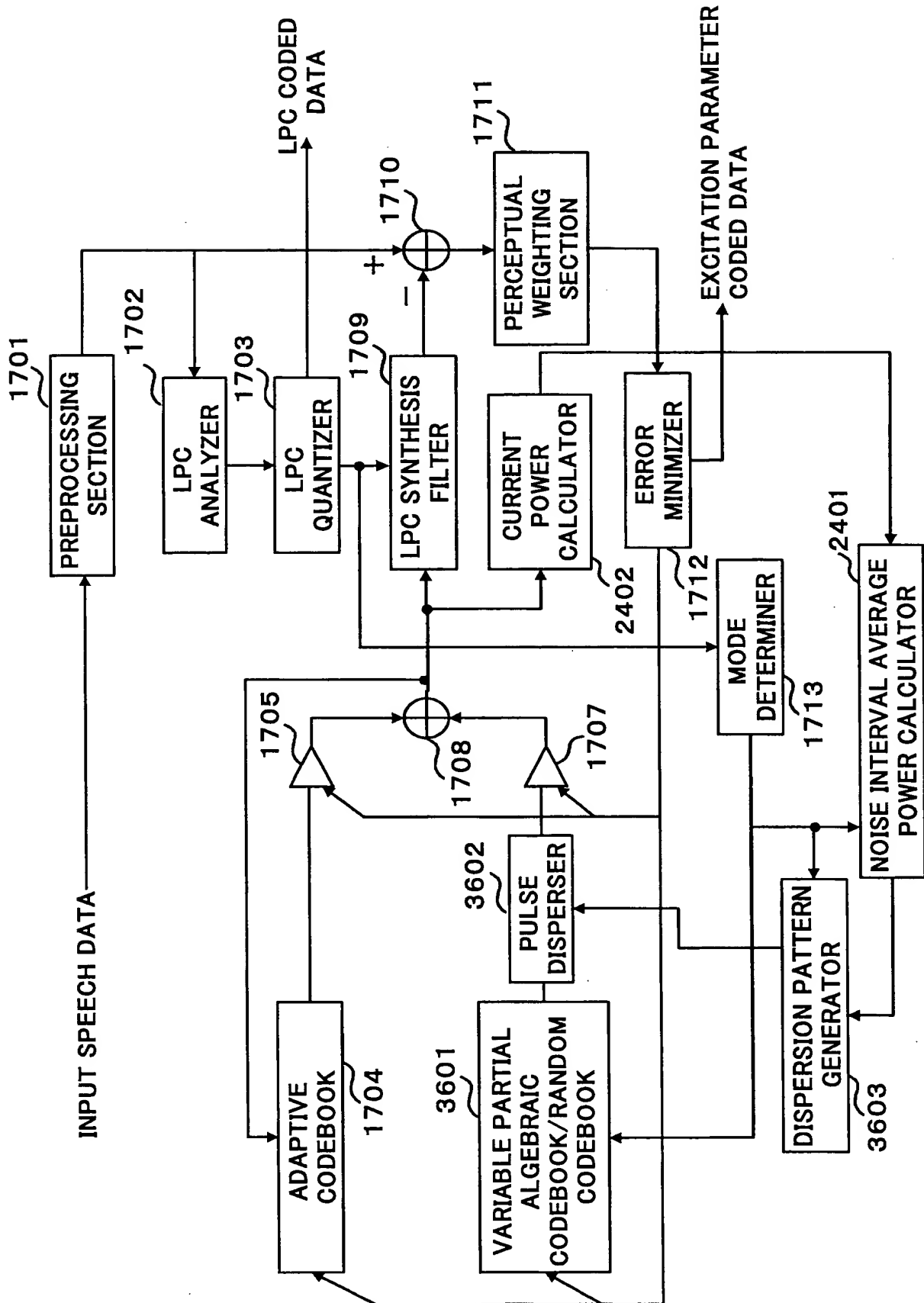


FIG. 39

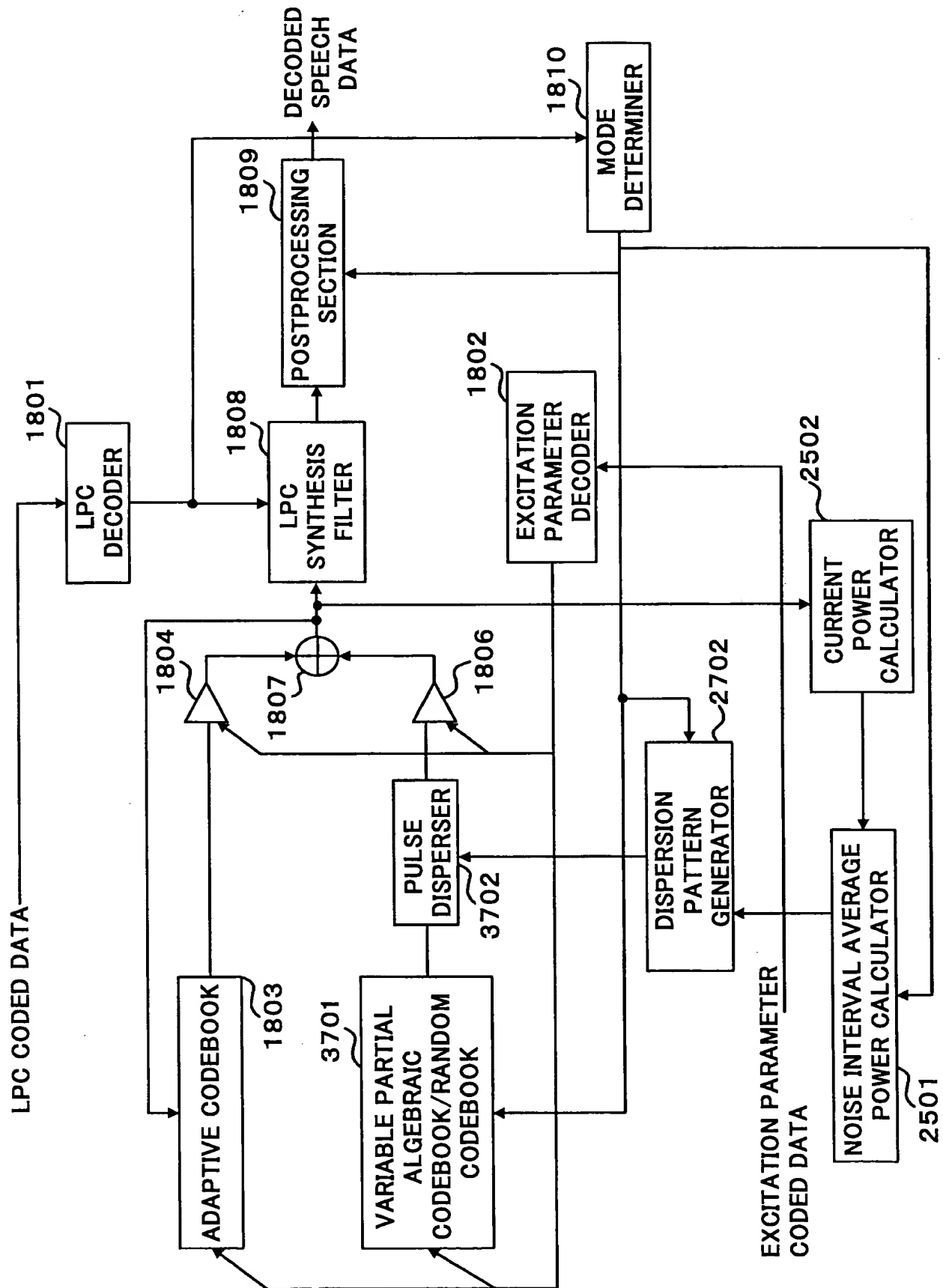


FIG. 40

(SWITCH A PLURALITY OF KINDS OF DISPERSION PATTERNS)

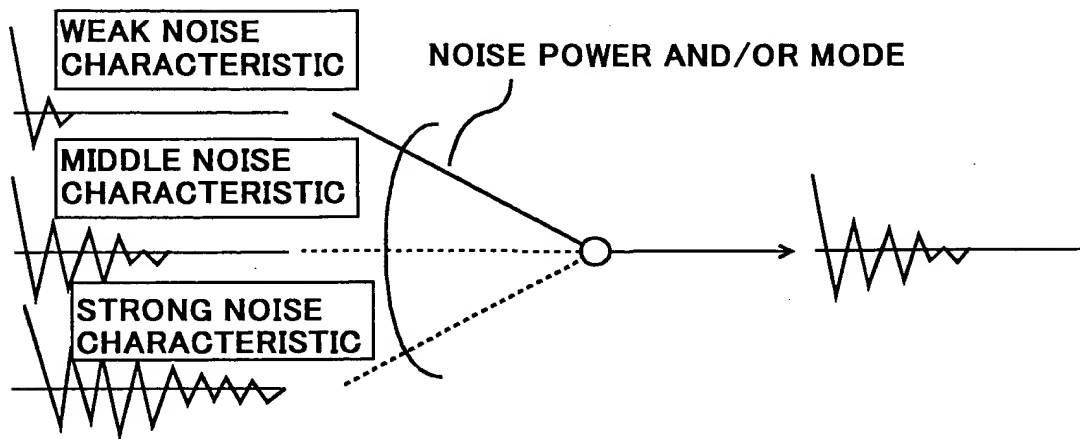


FIG.41

(PROCESS ONE KIND OF DISPERSION PATTERN)

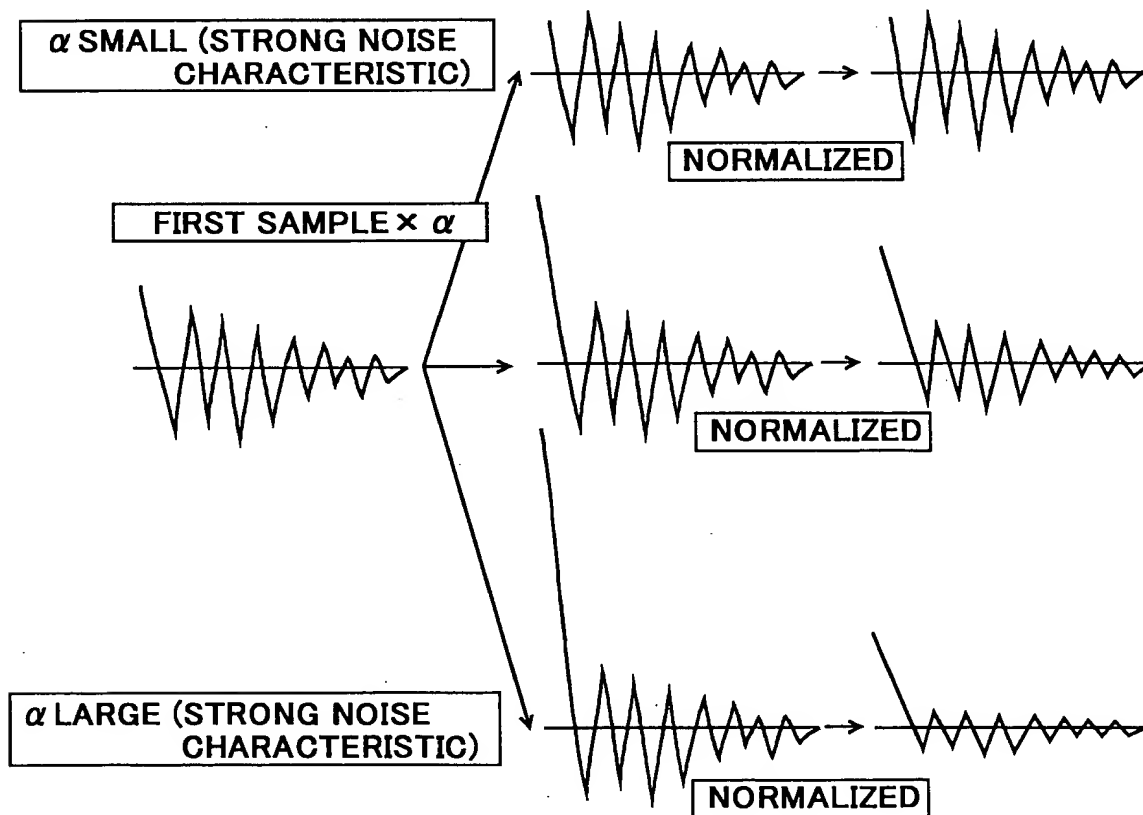


FIG.42